

63. (once amended) A method for producing a protein from an endogenous cellular gene comprising:

(1) introducing a genetically engineered vector comprising a transcriptional regulatory sequence operably linked to an unpaired splice donor sequence into a cell;

(2) maintaining said cell under conditions appropriate for integrating said vector into the genome of said cell by non-homologous recombination whereby said transcriptional regulatory sequence and unpaired splice donor sequence are operably linked to said endogenous cellular gene;

(3) maintaining said cell under conditions appropriate for expressing said endogenous cellular gene in said cell by means of said transcriptional regulatory sequence; and

(4) maintaining said cell so as to produce amounts of the protein encoded by said endogenous cellular gene.

65. (once amended) A method to express and screen for expression of a cellular gene comprising:

(1) introducing a genetically engineered vector into a cell and maintaining said cell under conditions appropriate for integrating said vector into the genome of a cell, said vector lacking targeting sequences and containing a transcriptional regulatory sequence and unpaired splice donor sequence, so that the coding region of a gene in the genome is operably linked to the transcriptional regulatory sequence and splice donor sequence on the vector; and

(2) screening said cell for expression of a protein that is encoded by said gene.

68. (once amended) A method to express and screen for expression of a cellular gene comprising:

- (1) introducing a genetically engineered vector into a cell and maintaining said cell under conditions appropriate for integrating said vector into the genome of a cell by non-homologous recombination, said vector containing a transcriptional regulatory sequence and unpaired splice donor sequence, so that the coding region of a gene in the genome is operably linked to the transcriptional regulatory sequence and splice donor sequence on the vector; and
- (2) screening said cell for expression of a protein encoded by the cellular gene, said gene and said upstream region of said gene lacking homology to the vector that would facilitate homologous recombination of the vector with the genome to cause expression of said gene.

72. (once amended) A purified cell expressing a protein, said cell comprising in its genome a genetically engineered vector, the vector comprising a transcriptional regulatory sequence operably linked to a splice donor sequence, said transcriptional regulatory sequence being linked effectively in the cell's genome to a gene in the genome encoding said protein so as to cause expression of said gene and said splice donor sequence being spliced to a splice acceptor sequence in said gene, the vector being inserted into said gene or upstream region of said gene, said gene and upstream region having no homology to any sequences in the vector that would

facilitate homologous recombination of the vector with the genome to cause expression of said gene.

73. (once amended) The cell of claim 72 wherein the vector additionally contains an amplifiable marker.

74. (once amended) A purified cell expressing a protein, said cell comprising in its genome a genetically engineered vector, the vector comprising a transcriptional regulatory sequence operably linked to a splice donor sequence, said transcriptional regulatory sequence on the vector being linked effectively in the cell's genome to a gene in the genome encoding said protein so as to cause expression of said gene and said splice donor sequence being spliced to a splice acceptor sequence in said gene, the vector containing no homology to any sequences in said gene or to upstream regions of said gene that would facilitate homologous recombination of the vector with the genome to cause expression of said gene.

76. (once amended) A purified cell expressing a protein encoded by an endogenous gene, said cell comprising in its genome a genetically engineered vector, the vector comprising a transcriptional regulatory sequence operably linked to a splice donor sequence, said transcriptional regulatory sequence on the vector being linked effectively in the cell's genome to cause expression of a protein encoded by said gene and said splice donor sequence being spliced

to a splice acceptor sequence in said gene, the vector being inserted into said gene or upstream region of said gene by non-homologous recombination.

77. (once amended) A purified cell expressing a protein encoded by an endogenous gene, said cell comprising in its genome a genetically engineered vector, the vector comprising a transcriptional regulatory sequence operably linked to a splice donor sequence, said transcriptional regulatory sequence on the vector being linked effectively in the cell's genome to cause expression of a protein encoded by said gene and said splice donor sequence being spliced to a splice acceptor sequence in said gene, said vector not containing a targeting sequence that would facilitate homologous recombination of the vector with the genome to activate expression of said gene.